



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

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Dear Interested Party:

DEPARTMENT OF ADMINISTRATION
OFFICE OF THE DIRECTOR
BUDGET AND PLANNING DIVISION

The Bureau of Land Management (BLM) Ely Field Office and Tonopah Field Station are proposing integrated management of the wild horse population within the Monte Cristo Wild Horse Herd Management Areas Complex. A wild horse gather would be conducted in coordination with the Humboldt-Toiyabe National Forest. The Monte Cristo Wild Horse Complex consists of the Monte Cristo, Sand Springs East, and Sand Springs West Wild Horse Herd Management Areas (HMA) as well as the Humboldt-Toiyabe National Forest Monte Cristo Wild Horse Territory. This wild horse herd is being managed as a single population due to the HMAs proximity to one another and past capture, census, field observations and distribution data collected indicate movement among wild horses between these HMAs/Territory. For this action, the four HMAs/Territory will be referred to as the Monte Cristo Complex. The gather would occur in January 2006, and last approximately three weeks. The action should prevent deterioration of the range, as well as maintain a thriving natural ecological balance and multiple use relationships with other users.

Enclosed is the Monte Cristo Complex Wild Horse Gather Plan and Preliminary Environmental Assessment (E.A.) NV-040-05-030. A copy of the gather plan and preliminary environmental assessment is available for a 30 calendar day public scoping/notification period. **If any member of the interested public would like to provide any information, data, or analysis** please send written comments to Stephanie Connolly, Acting Assistant Field Manager, Renewable Resources, at Ely Field Office, Bureau of Land Management, HC 33 BOX 33500, Ely, Nevada 89301.

If you have any questions, please contact Jared Bybee, Lead Wild Horse and Burro Specialist, Ely Field Office at (775) 289-1843

Sincerely,

Stephanie Connolly
Acting Assistant Field Manager
Renewable Resources

1 Enclosure:

1. Monte Cristo Complex Wild Horse Gather Plan and Preliminary Environmental Assessment (E.A.) NV-040-05-030

CC:

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Nevada Cattlemens Association	7004 1160 0005 3070 2460

Nevada Dept of Agriculture	7004 1160 0005 3067 0103
Nevada Farm Bureau Federation	7004 1160 0005 3067 0134
Nevada Woolgrowers Assoc.	7004 1160 0005 3067 0288
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**U.S. Department of the Interior
Bureau of Land Management
Ely Field Office
Tonopah Field Station**

**Monte Cristo Complex
Wild Horse Gather Plan
and Preliminary Environmental Assessment**

Ely No. NV-040-05-030

**Jared Bybee
October 2005**

I. Background Information

The Bureau of Land Management (BLM) Ely Field Office and Tonopah Field Station are proposing integrated management of the wild horse population within the Monte Cristo Wild Horse Herd Management Areas Complex. A wild horse gather would be conducted in coordination with the Humboldt-Toiyabe National Forest. The Monte Cristo Wild Horse Complex consists of the Monte Cristo, Sand Springs East, and Sand Springs West Wild Horse Herd Management Areas (HMA) as well as the Humboldt-Toiyabe National Forest Monte Cristo Wild Horse Territory. This wild horse herd is being managed as a single population due to the HMAs proximity to one another and past capture, census, field observations and distribution data collected indicate movement among wild horses between these HMAs/Territory. For this action, the four HMAs/Territory will be referred to as the Monte Cristo Complex. The gather would occur in January 2006, and last approximately three weeks. The action should prevent deterioration of the range, as well as maintain a thriving natural ecological balance and multiple use relationships with other users.

This environmental assessment (EA) has been prepared to analyze the impacts associated with the BLM's proposal to remove excess wild horses, as well as fertility control treatment that could be applied to mares returned to the complex post removal operations.

The Monte Cristo Complex is located approximately 30 miles west, south west of Ely, Nevada, 10 miles southeast of Eureka, Nevada and 80 miles northwest of Tonopah Nevada (Figure 1). The Monte Cristo HMA/Territory is located almost entirely within White Pine County, Nevada except a small amount of acreage in the southern end which is in Nye County, Nevada. Sand Springs East and Sand Springs West are located within Nye County. Monte Cristo and Sand Springs East are administered by the Ely BLM Field Office, while Sand Springs West is administered by the Tonopah Field Station. Monte Cristo Territory is administered by the Humboldt-Toiyabe National Forest. Table 1 shows the acres and Appropriate Management Level (AML) within each HMA/Territory.

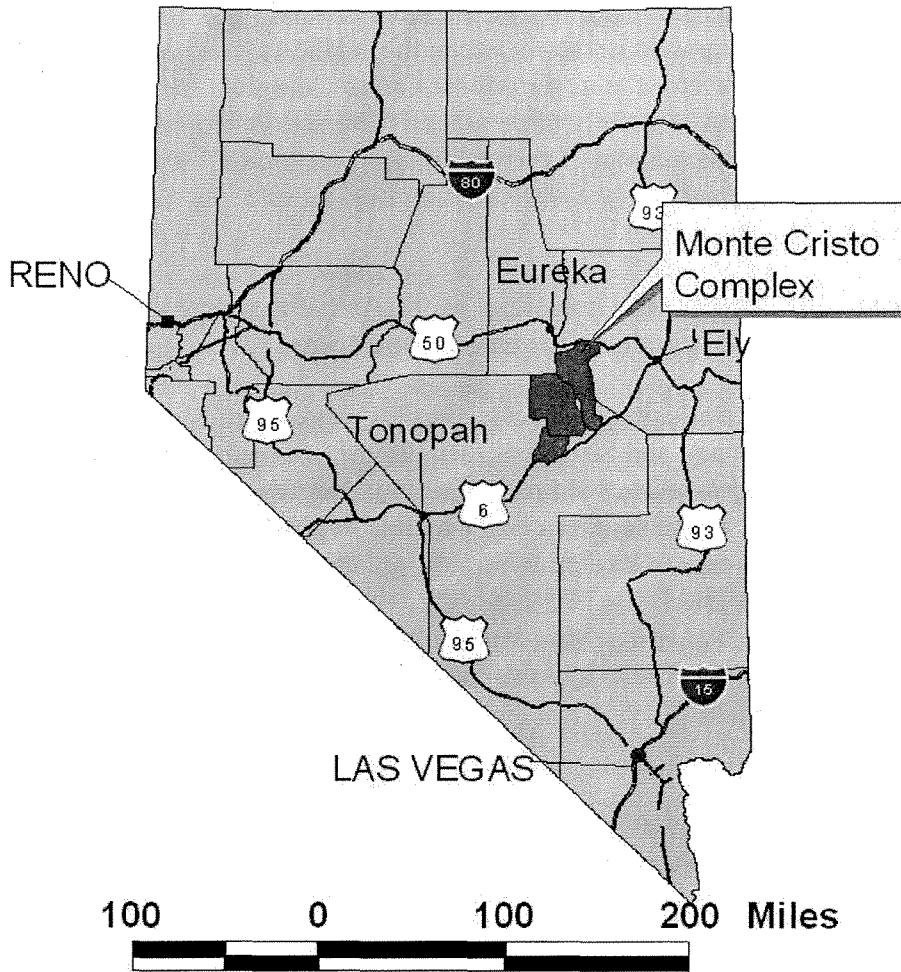
Table 1 Acres

Herd	Total Acres	Appropriate Management Level
Monte Cristo HMA	379,025	236
Sand Springs East HMA	485,061	257
Sand Springs West HMA	157,436	49
Monte Cristo Territory	93,640	236 for ¼ year
Total	1,118,162	542

Appropriate Management Level (AML) is defined as the number of wild horses that can be sustained within a designated HMA which achieves and maintains a thriving natural ecological balance keeping with the multiple-use management concept for the area. The AML for each HMA is based on in-depth analysis and monitoring data and established through the issuance of BLM multiple use decisions (MUDs) between 1991 and 1995, for Monte Cristo and Sand Springs East HMAs. Sand Springs West had AML established through the Tonopah Resource

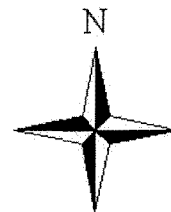
Management Plan Record of Decision 1997. The BLM allotment, AML, MUD or Management Plan, and date of decision are shown in Appendix I.

Monte Cristo Complex Location

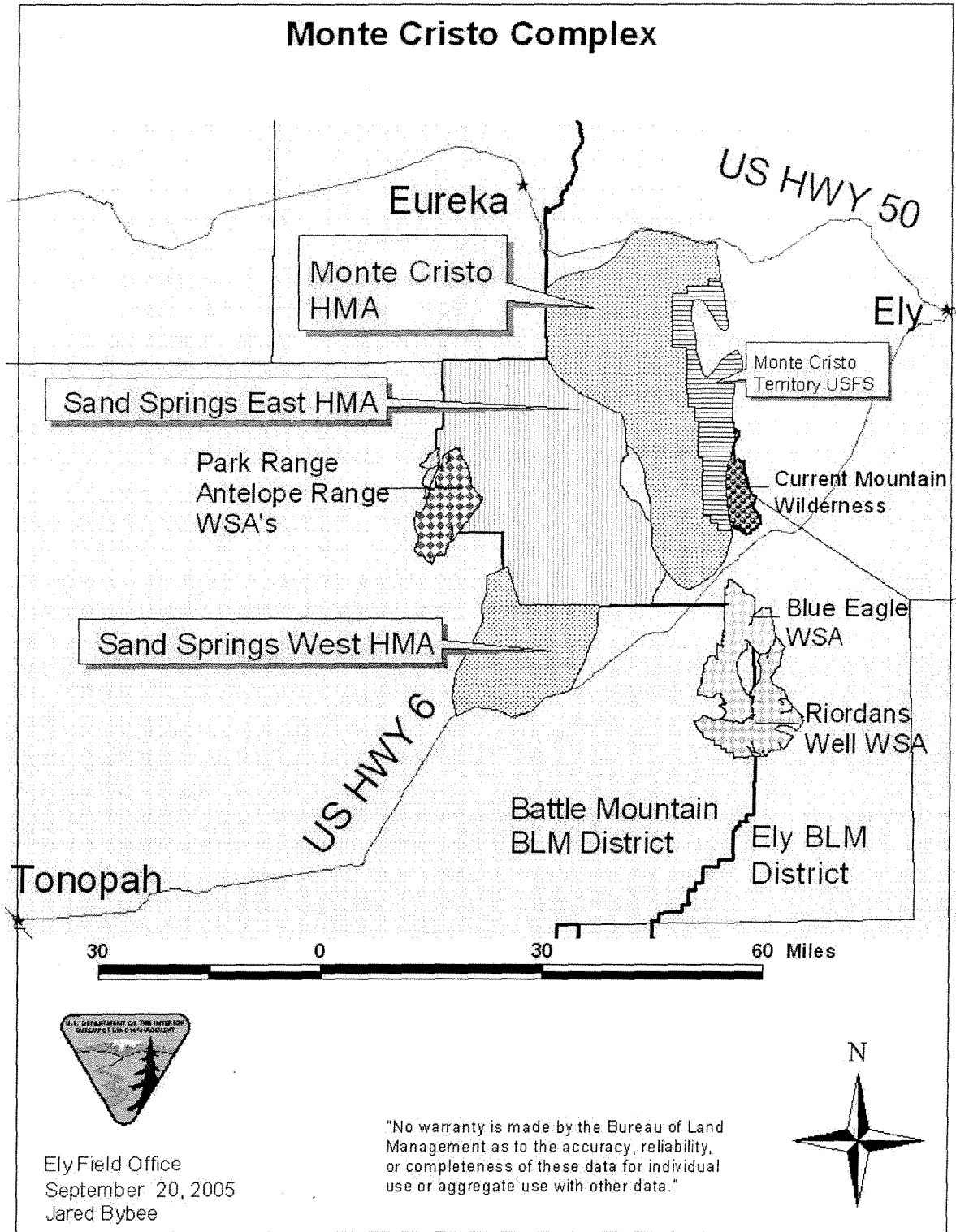


Ely Field Office
October 23, 2005
J Bybee

"No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data."

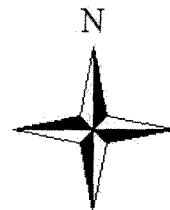


Monte Cristo Complex



Ely Field Office
September 20, 2005
Jared Bybee

"No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data."



The Monte Cristo Complex was last gathered in the winter of 1999 to remove excess wild horses and achieve AML and conduct fertility control experimentation. Since 1999, HMAs within the Monte Cristo Complex have been gathered for a variety of reasons. Sand Springs East and Sand Springs West were gathered in summer of 2000 due to drought emergency. Monte Cristo HMA/Territory was gathered in winter of 2002/2003 as a regularly scheduled maintenance gather. After completion of these series of gathers, the estimated population on the range was 540 wild horses for the entire complex, which is approximately the high end of AML. Aerial census of the Monte Cristo Complex in March of 2005 observed 820 adult wild horses. Based on past capture and census data, the average annual population increase is approximately 20% for the Monte Cristo Complex. The current estimated population within the complex is 980 wild horses based upon an additional foal crop of 820 adults and 160 foals. The current estimated wild horse population of 820 adults is approximately 44% over the capacity of the complex. In March 2006 when the foals are counted as adults the population would be 55% over the capacity of the complex.

While wild horse numbers have increased an average of 20% since the HMAs were last gathered, livestock use has remained within or below permitted use levels. Livestock use has also been in compliance with the grazing systems outlined in Final Multiple Use Decisions, Agreements, and Term Permits which provide periodic rest and deferment of key range sites. Pre-livestock utilization monitoring indicates that total utilization of key forage species has increased steadily since the HMA was last gathered; average utilization is now moderate to heavy within many key areas. Analysis of field monitoring data demonstrates an excess of wild horses in portions of the Complex. Measurements of upland utilization on key grass species range from light to heavy use by wild horses. Areas within the HMA receiving particularly heavy wild horse use include Green Springs Valley, and Bull Creek Bench within Monte Cristo, Ike Springs, and Portuguese Mountain within Sand Springs East and West. Winterfat (*Eurotia lanata*), a key browse species, exhibits moderate to heavy use by wild horses at some key areas. Heavy trailing by wild horses is evident at riparian areas and water developments in portions of the HMA, but not widespread in the entire Complex. This data, together with a review of the analysis which established AML for the HMA, indicates that the current AML of 542 wild horses is the appropriate level not to be exceeded and that excess wild horses are present and require immediate removal.

A. Need for the Proposed Action

BLM has determined there are excess wild horses present and the Proposed Action is needed in January of 2006 to restore wild horse herd numbers to levels consistent with the Appropriate Management Level (AML) for the Complex, which would achieve a thriving natural ecological balance.

This determination was made by comparison of census data with vegetation monitoring to determine the level of wild horse use. It has been determined that current wild horse population is exceeding the ranges' capacity to sustain wild horse use over the long term. Further this information affirms the existing AML is appropriate and should not be exceeded. Resource damage is occurring in some areas of the Complex and is likely to continue to occur as well as increase without immediate action. The area has experienced five years of drought with one above normal precipitation year in winter and spring of 2004/2005. Removing excess wild horses

is needed to restore and maintain a thriving and natural ecological balance, prevent the range from deterioration as well as maintain multiple use relationships. Removing excess wild horses to a level below the maximum AML is needed to allow the population to gradually increase without exceeding the capacity of the Complex over the next several years. The proposed capture and removal is needed at this time in order to achieve a thriving natural ecological balance between wild horse populations, wildlife, livestock, and vegetation, to improve watershed health, make “significant progress towards achievement” of Northeastern Great Basin Resource Advisory Council (RAC) Standards for rangeland health, and to protect the range from the deterioration associated with overpopulation of wild horses as authorized under Section 3(b) (2) of the 1971 Free-Roaming Wild Horses and Burros Act and Section 302(b) of the Federal Land Policy and Management Act of 1976.

B. Relationship to Planning

The proposed action and alternatives for the Monte Cristo, and Sand Springs East HMA’s are subject to the Egan Resource Management Plan (RMP) and Final Environmental Impact Statement (FEIS) dated December 24, 1983, and resolution of protests received on the proposed RMP and FEIS documents dated September 21, 1984, and the Egan Resource Area Record of Decision (ROD) which was finalized February 3, 1987. The proposed wild horse gather is in conformance with the Egan RMP as required by regulation (43 CFR 1610.5-3(a)). The proposed action is in conformance because it is clearly consistent with the goals and objectives of the approved land use plan. It is further consistent with the White Pine County Policy Plan for Public Lands (PPPL) as adopted by the Board of County Commissioners of White Pine County, May 1, 1985 and amended June 12, 1985. Nye County Policy Plan for Public Lands (adopted April 3, 1985 by the Nye County Board of Commissioners. This plan stated in part “...*wild horse herds should be managed at reasonable levels to be determined with public involvement and managed with the consideration of the needs of other wildlife species and livestock.*” The action is also consistent with the White Pine County Elk Management Plan (EMP), approved March 1999, and the Greater Sage-Grouse Conservation Plan for Nevada and Eastern California, First Edition June 2004.

For the Sand Springs West HMA, the proposed action and alternatives conform to the Tonopah Resource Management Plan (RMP) and subsequent Record of Decision dated October 1997.

The proposed action is consistent with all applicable regulations at 43 CFR (Code of Federal Regulations) 4700 and policies. The proposed action is also consistent with the Wild Free Roaming Horse and Burro Act of 1971, which mandates the Bureau to “*prevent the range from deterioration associated with overpopulation*”, and “*remove excess horses in order to preserve and maintain a thriving natural ecological balance and multiple use relationships in that area*”. Additionally, Promulgated Federal Regulations at Title 43 CFR 4700.0-6 (a) state “*Wild horses shall be managed as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat* (emphasis added).”

In addition, it is consistent with the Northeastern Great Basin RAC Standards for Rangeland Health as well as the Mojave Southern Great Basin RAC Standards for Rangeland Health. The proposed action is consistent with federal, state, and local laws; federal regulations, and Bureau

policy.

C. Issues

The two issues identified are the proper management of wild horses and making significant progress towards rangeland health.

II. Description of the Proposed Action and Alternatives

A. Proposed Action

The BLM Ely Field Office/Tonopah Field Station propose a maintenance gather of the Monte Cristo Complex. The management of the wild horse herd within the Monte Cristo Complex would be managed at a level of 285 wild horses following the gather and not to exceed 542 wild horses prior to the next scheduled maintenance gather. The proposed action would consist of capturing approximately 85% of the population or 840 wild horses, not capturing 140 wild horses, selectively removing 700 wild horses, releasing 145 wild horses, and removing all wild horses outside an HMA. The selective removal would consist of removing wild horses in the following priority; age class 5 and younger would be removed first, animals age 6-15 would only be removed if needed and held for release, and animals 16 and older would not be removed and would be released. Of the release wild horses approximately one half are anticipated to be mares. These release mares would be subject to fertility control experimentation research or Porca Zona Pellucide (PZP) treatment. If at least 25 mares are captured from both Monte Cristo and Sand Springs East (or 50 mares total) that are healthy PZP would be administered. Additional selective removal would occur with animals displaying characteristics of the Bashkir Curly descent. These animals regardless of age would be selected for release unless needed for achievement of gather removal objectives. Herd health, and characteristics data would be collected as part of continued monitoring of the wild horse herd. Blood samples for establishment of genetic marker or allele phenotyping would be collected for Sand Springs East and West. Monte Cristo would not be collected due to prior collection. The gather would be conducted in January 2006. Table 2 shows the current estimated populations, AML, and estimated capture and removal numbers.

The post gather population of approximately 285 wild horses would represent the level of wild horses after the proposed gather. The populations would be reduced to the number shown through population modeling that would allow for a population increase without exceeding a "*thriving natural ecological balance*" over the next several years.

During gather activities, BLM personnel would record data for the captured horses including sex, age and color; and assess herd health (pregnancy/parasite loading/physical condition/etc), and sort horses by age and sex. Selected animals would be returned to the HMAs based on desired characteristics for each herd, and consistent with the following selection criteria of the BLM's *Gather Policy and Selective Removal Criteria for Wild Horses* (Washington Office IM 2005-206):

- a) *Age Class Five Years and Younger*: Wild horses five years of age and younger should be the first priority for removal and placement into the national adoption program.

b) Age Class Six Years to Fifteen Years: Wild horses six to fifteen years of age should be removed last and only if management goals and objectives for the herd cannot be achieved through the removal of younger animals.

c) Age Class Sixteen years and older: Wild horses aged sixteen years and older should not be removed from the range unless specific exceptions prevent them from being turned back and left on the range.

Multiple capture sites (traps) would be used to capture wild horses from the HMAs/Territory or outside HMA/Territory. No trap sites would be set up in sage grouse leks, riparian areas, cultural resource sites, or Wilderness Study Areas (WSA's). Capture sites would be located in previously disturbed areas. All trap sites, holding facilities, and camping areas on public lands would be recorded with Global Positioning System equipment, given to the weed coordinator, and then assigned for monitoring during the next several years for noxious weeds. All capture and handling activities (including capture site selections) will be conducted in accordance with Standard Operating Procedures (SOPs) Appendix III. Capture techniques would consist of the helicopter-drive trapping method and/or helicopter-roping from horseback.

B. Gather Without Fertility Treatment

This alternative is the same as the Proposed Action, except that the BLM would not conduct immunocontraception research with the drug, PZP. No fertility control would be applied to mares, no matter what the capture rate is.

C. No Action Alternative – Continuation of Existing Management

The No Action Alternative is required by National Environmental Policy Act (NEPA) analysis to provide a baseline for impact analysis.

Under this alternative gathering and removing animals would be deferred. This alternative postpones direct management of the wild horse populations in the Monte Cristo Complex. No significant progress toward meeting rangeland health standards would be made at this time. Wild horse populations would continue to increase at rates of 20% per year. A management action to reduce herd numbers may be evaluated and implemented at later time. The BLM and the Humboldt-Toiyabe National Forest would continue vegetation and population monitoring.

E. Alternatives Considered But Eliminated From Detailed Analysis

A gate cut gather was considered but eliminated from detailed analysis due to not meeting the purpose and need. A gate cut gather would consist of removing the first 700 wild horses captured regardless of age, sex, or exhibiting Bashkir Curly characteristics. A gate cut is a sound tool for gathers that are grossly above the AML. The Monte Cristo gather is a maintenance gather and population manipulations are very appropriate for maintaining a wild horse herd, a gate cut would not allow this.

III. Affected Environment

General Setting

The Monte Cristo Complex is located in southwestern White Pine and northeastern Nye Counties approximately 30 air miles west of Ely, Nevada, and 80 miles northeast of, Tonopah Nevada. The area is within the Great Basin physiographic regions, characterized by a high, rolling plateau underlain by basalt flows covered with a thin loess and alluvial mantle. On many of the low hills and ridges that are scattered throughout the area, the soils are underlain by bedrock. Elevations within the Complex range from approximately 5,000 feet to 11,000 feet. Annual precipitation ranges from approximately 7 inches on some of the valley bottoms to 25 inches on the mountain peaks. Most of this precipitation comes during the winter and spring months in the form of snow, supplemented by localized thunderstorms during the summer months. Temperatures range from greater than 90 degrees Fahrenheit in the summer months to minus 20 degrees in the winter. The area is also utilized by domestic livestock and numerous wildlife species.

Table 3 summarizes which of the critical elements of the human environment and other resources of concern within the project area are present, not present or not affected by the proposed action.

Table 3. Summary of Critical and Other Elements of the Human Environment

Critical Element	No Effect	May Affect	Not Present	Rationale
Air Quality	X			Vehicle and helicopter emissions and project related surface disturbance would be inconsequential.
Areas of Critical Environmental Concern			X	Resource is not present
Cultural Resources		X		Cultural sites would be avoided. Cultural resources around springs would be better protected with wild horse removal
Environmental Justice			X	No minority or low-income groups would be disproportionately affected.
Floodplains			X	Resource is not present.
Hazardous Wastes			X	Hazardous wastes would not be generated.
Invasive, Non-native Species		X		Surface disturbance may spread invasives.
Migratory Birds		X		Gathers would not be conducted during the migratory bird nesting period. Removal of wild horses would improve sagebrush nesting habitat.
Native American Religious Concerns			X	No conflicts were identified during coordination.
Prime or Unique Farmlands			X	Resource is not present.
Riparian Areas		X		Gathering horses would improve riparian areas.
Soils		X		Localized trampling would occur during the gather. Removing wild horses reduces hoof action on soil.
Solid Wastes	X			Solid wastes are not present and would be disposed of properly.

Special Status Species		X		Gathering horses would improve habitat.
Critical Element	No Effect	May Affect	Not Present	Rationale
Vegetation		X		Localized trampling of vegetation would occur due to trapsites. Removing wild horses would improve vegetation conditions.
Visual Resource Management	X			Gather operations are temporary and would meet the Class III VRM Objective of retaining the existing character of the landscape.
Water Quality (drinking or ground)	X			No affects to water quality are expected.
Wetlands			X	Resource is not present.
Wild and Scenic Rivers			X	Resource is not present.
Wild Horses		X		Individual wild horses would be impacted by the gather, but reducing populations would lead to increased herd health.
Wildlife		X		Wildlife may be temporarily displaced, but habitat would improve.
Wilderness		X		Wilderness values of naturalness may improve after the gather.

IV. Environmental Consequences

The following critical or other elements of the human environment are present and may be affected by the proposed action or the alternatives. The affected environment is described for the reader to be able to understand the impact analysis.

A. Wild Horses

Affected Environment

Wild horses are introduced species within North America and have few natural predators. Few natural controls act upon wild horse herds making them very competitive with native wildlife and other living resources managed by the BLM. Census flights have been conducted in the Monte Cristo Complex every three to four years. These census flights have provided information pertaining to population numbers, foaling rates, distribution, and herd health. Wild horse population growth rates average approximately 20% in Monte Cristo Complex. The estimated herd population for the Monte Cristo Complex was determined from March 2005 census data with the addition of one foal crop. Wild horses within the Complex generally move between HMA's/Territories due to minimal fencing.

Blood samples were collected from 25 wild horses during the 2002/03 Monte Cristo gather to develop genetic baseline data (e.g. genetic diversity, historical origins of the herd, unique markers). The samples were analyzed by a geneticist to determine the degree of heterozygosity for the herd. This genetic data would be incorporated into future population planning and monitoring for wild horses within the complex.

Environmental Impacts

Assumptions for analysis: Impact analysis assumes that an 85% capture rate would be attained. An 85% capture rate with fertility control would slow reproduction rates. Previous research on winter application of the two-year drug has shown that mares already pregnant will foal normally, but the fertility control treatment can be 94% effective the first year, 82% the second year, and 68% the third year. The population model (Appendix IV) is for illustration purposes only and may not necessarily reflect actual growth rates or outcomes of management actions.

Proposed Action – The Proposed Action would remove excess wild horses within the Complex and adjacent to the complex outside an HMA.. This would improve herd health. Less competition for forage and water resources would reduce stress and promote healthier animals. The proposed action would also allow for the continued collection of information on herd characteristics, determination of herd health, establish genetic baseline data for Sand Springs East and West. Further, the proposed action would allow for the implementation of a fertility control research project. Applying fertility control measures as part of the proposed action could slow reproduction rates of mares returned to the HMA following the gather if enough mares are treated. This could allow vegetation resources time to recover. It would also decrease gather frequency and disturbance to individual animals and the herd, and provide for a more stable wild horse social structure. At least 25 mares from each HMA would need to be treated in order to be cost effective.

Population-wide impacts can occur during or immediately following implementation of the Proposed Action. These include the displacement of bands during capture and the associated re-dispersal, modification of herd demographics (age and sex ratios), temporary separation of members of individual bands of horses, reestablishment of bands following release, and the removal of animals from the population. With the exception of changes to herd demographics, direct population wide impacts over the last 20 years have proven to be temporary in nature with most if not all impacts disappearing within hours to several days of release.

The Proposed Action includes using established procedures for determining what selective removal criteria is warranted for the herd. This flexible procedure allows for correction of any discrepancies in herd demographics observed during the gather that may predispose a population to increased chances for catastrophic impacts. The standard for selection also minimizes the possibility for development of future negative age or sex based effects to the population. The effect of removing wild horses from the population is not expected to have a negative impact on herd dynamics or population variables, as long as the selection criteria for removal ensures a healthy population structure is maintained.

Population-wide indirect impacts that would not appear immediately are difficult to quantify.

Concerns related to the proposed participation in research for PZP are associated primarily with the use of fertility control drugs, and involve reductions in short term fecundity of initially a large percentage of mares in a population and potential genetic issues regarding the control of contributions of mares to the gene pool. All mares would have a chance to cycle at least once before the Complex is gathered again because fertility control is only effective for 2-3 years. As AML's are achieved with increasing herd health, the potential for these impacts would be expected to lessen as the need to gather excess horses and impose fertility control treatments on a high proportion of the mare population would be less frequent and all mares would be expected to successfully recruit some percentage of their offspring into the population. Decreased competition coupled with reduced reproduction as a result of fertility control should result in improved health and condition of mares and foals and in maintaining healthy range conditions over the longer-term. Additionally, reduced reproduction rates would be expected to extend the time interval between gathers and reduce disturbance to individual animals as well as herd social structure over the foreseeable future.

Impacts to individual animals may occur as a result of handling stress associated with the gather, capture, processing, and transportation of animals. The intensity of these impacts varies by individual and is indicated by behaviors ranging from nervous agitation to physical distress. Mortality to individuals from this impact is infrequent but does occur in one half to one percent of wild horses captured in a given gather. Other impacts to individual wild horses include separation of members of individual bands of wild horses and removal of animals from the population.

Indirect impacts can occur to horses after the initial stress event, and may include increased social displacement, or increased conflict between studs. These impacts are known to occur intermittently during wild horse gather operations. Traumatic injuries may occur, and typically involve biting and/or kicking bruises, which do not break the skin.

Implementation of this action would reduce the wild horse population to within AML. This would ensure that the remaining wild horses are healthy and vigorous, and not at risk of death due to insufficient habitat. This would also be in compliance with the Wild Free Roaming Horse and Burro Act, Northeastern Great Basin RAC Standards for Rangeland Health, Mojave-Southern Great Basin RAC Standards for Rangeland Health, and land use plan management objectives. Risks to the health of the rangelands by exceeding the carrying capacity of the range, and risks to the health of the horse herds would be minimized. Wild horses would not be at risk of death by starvation and lack of water due to unpredictable weather patterns. Stud horses would fight less frequently as they protect their position at scarce water sources. In addition to less stud fights, injuries and death to all age classes of animals would decrease. As populations are managed within capacity of the habitat, bands of horses would be less likely to leave the boundaries of the HMA seeking forage and water

Alternative I– Impacts from this alternative would be the same as in the Proposed Action, except that fertility control would not be applied. Individual mares would not receive the fertility control shot, and would undergo less stress due to decreased handling. Mares would continue to foal normally. Past gather experience has shown that the wild horse population will be at the high end of AML four years after the gather. Without slowing reproduction, a gather to maintain

AML may be needed sooner than stated in the Proposed Action.

Population modeling illustrates that the average wild horse population growth rate of the median of 100 trials should be 16.3% over ten years. The average population size of the median of 100 trials would be wild horses at the end of four years. Modeling also indicates that the population after the gather would not put the population at risk of catastrophic loss or “crash” (Appendix IV).

No Action Alternative – If No Action is taken, excess wild horses would not be removed from the Monte Cristo Complex at this time. The animals would not be subject to the individual direct or indirect impacts as a result of a gather operation this summer. However, individuals in the herd would be subject to more stress and possible death as a result of increased competition for water and forage as the herd population grows.

Wild horses are a long-lived species with documented survival rates exceeding 92% for all age classes. Predation and disease do not substantially regulate wild horse population levels. This would lead to a steady increase in wild horse numbers, which would continue to exceed the carrying capacity of the range. Consequences of exceeding the established AML and the carrying capacity of the range would be increased risk to the health of the rangelands, and risk to horse herd health. Individual horses would be at risk of death by starvation and lack of water. The population of wild horses would compete for the available water and forage resources, affecting mares and foals most severely. Social stress would increase. Fighting among stud horses would increase as they protect their position at scarce water sources, as well as injuries and death to all age classes of animals. The areas closest to the water would experience severe utilization and degradation. Over time, the animals would deteriorate in condition as a result of declining forage availability and the increasing distance traveled to forage. Many horses, especially foals and mares, would likely die through the winter if average snowfall levels are received.

As populations increase beyond the capacity of the habitat, more bands of horses would leave the boundaries of the HMA seeking forage and water, which in turn may put them at risk in new and unfamiliar country. The health of the wild horse herd population would be reduced, the condition of the range would deteriorate, and other range users would be impacted. This alternative would not achieve the stated objectives for wild horse herd management areas, to “prevent the range from deterioration associated with overpopulation”, and “preserve and maintain a thriving natural ecological balance and multiple use relationship in that area”.

To facilitate easy comparison of alternatives, the no action alternative was also modeled for four years. The average of 100 population modeling trials indicates that if the current wild horse population continues to grow without a removal the median population size would be wild horses at the end of four years. Modeling indicates the average growth rate is expected to be an annual increase (Appendix IV).

B. Vegetation, and Soils

Affected Environment

The Monte Cristo Complex occurs within Major Land Resource Area (MLRA) 028B, the Central Nevada Basin and Range Area, and MLRA 029, Southern Nevada Basin and Range, first described by the U. S. Department of Agriculture in the early 1960's. The Natural Resource Conservation Service (NRCS) has extensively described the topography, geology, soils, climate, and range sites of each MLRA. The NRCS periodically updates information concerning each MLRA as new data becomes available. NRCS data summarized below will be used in this analysis.

The vegetative plant communities within the Complex have developed on many different soil types with several kinds of parent materials. The vegetation is diverse with desert shrub/sagebrush/grass plant communities dominating the lower elevations while sagebrush/mountain shrub/grass/pinyon-juniper/mountain mahogany plant communities dominate the benches and higher elevation sites.

The plant species dominating the lower elevations include Wyoming big sagebrush, black sagebrush, winterfat, shadscale, budsage, sickle saltbush, black greasewood, rabbitbrush, Indian ricegrass, Sandburg bluegrass, bottlebrush squirreltail, needlegrass, and assorted forb species.

The plant species dominating the higher elevations include Wyoming big sagebrush, mountain sagebrush, black sagebrush, low sagebrush, antelope bitterbrush, Utah serviceberry, snowberry, golden and squaw currant, pinyon pine, Utah juniper, curlleaf mountain mahogany, limber pine, white fir, bluebunch wheatgrass, needlegrass, and assorted forb species.

Soils within the HMA are typical of the Great Basin and vary with elevation. Soils range in depth from very shallow (below 20 inches to bedrock) to deep (greater than 60 inches to bedrock) and are typically gravelly, sandy and/or silty loams. Soils located on low hill slopes, upland terraces, and fan piedmont remnants are typically shallow to deep over bedrock or indurated lime hardpan. They are highly calcareous and medium textured with gravel. Soils on mountain slopes are also calcareous and range from shallow to deep over limestone. Some of the mountain soils have high rock fragment content, and support pinyon and juniper trees. Mountain soils typically have gravelly to very gravelly silt loam textures. Soils on floodplains and fan skirts are deep, have silty textures, and are highly calcareous.

Rangeland or wild horse monitoring data collected for the HMA Complex shows that utilization by wild horses has increased from 2002 through 2004 in portions of the Complex. During this time, wild horse numbers have increased while livestock numbers have remained fairly constant or decreased. Forage utilization is exceeding allowable use levels and is reaching moderate to heavy use in established key grazing areas in portions of the Complex. Excess utilization in key grazing areas and trampling in riparian areas is currently impacting rangeland health and inhibiting recovery of both uplands and riparian areas.

Environmental Impacts

Proposed Action – Removing excess wild horses would make progress towards achieving a “thriving natural ecological balance.” Implementation of the proposed action would reduce the wild horse population within the Monte Cristo Complex within AML. It would reduce stress on

vegetative communities, and be in compliance with the Wild Free Roaming Horse and Burro Act, Northeastern Great Basin and Mojave-Southern Great basin RAC Standards, and land use plan management objectives. Rangeland health and vegetative resources would improve with the reduced population. Vegetative species would not experience over-utilization by wild horses, which would lead to healthier, more vigorous forage plants and plant communities. This would result in an increase in forage availability, vegetation density, vigor, productivity, cover, and plant reproduction. Plant communities would become more resilient to disturbances such as wildfire, drought, and grazing.

Overall, soil conditions would improve after horse numbers are reduced. Less soil compaction would occur in riparian areas where the soils are most susceptible. Compressional impacts to biological soil crusts from horses would be lessened over the area with horse removal, and crust cover on the highly calcareous soils would increase. Following horse removal, increased vegetative and biological soil crust cover would reduce wind and water erosion.

Impacts to vegetation and soils with implementation of the Proposed Action would include disturbance of native vegetation immediately in and around temporary trap sites, and holding and processing facilities. Impacts would be by vehicle traffic and the hoof action of penned horses, and would be locally severe in the immediate vicinity of the corrals or holding facilities. Generally, these activity sites would be small (less than one half acre) in size. Soil compaction, localized wind erosion, and destruction of biological soil crusts where present, would occur at the trap sites. Since most trap sites and holding facilities would be re-used during recurring wild horse gather operations, any impacts would remain site-specific and isolated in nature. In addition, most trap sites or holding facilities are selected to enable easy access by transportation vehicles and logistical support equipment and would generally be adjacent to or on roads, pullouts, water haul sites, or other flat spots that were previously disturbed. Vehicles used in the horse gather would also cause soil compaction and increased erosion in a small area. By adhering to the SOPs, adverse impacts to soils would be minimized.

Alternative I – Impacts would be the same as in the proposed action at the time of the gather and one year post gather. However, without slowing reproduction, a steady increase in the number of wild horses through natural foaling rates would have a more steady impact on vegetation and soils. Vegetative resources may not get as much recovery as in the proposed action, but a thriving natural ecological balance would still be achieved.

No Action Alternative – With the no action alternative, wild horse populations continue to grow. Increased horse use throughout the HMA would adversely impact soils and vegetation health, especially around riparian resources. As native plant health deteriorates and plants are lost, soil erosion would increase. Continued heavy wild horse use, especially around water sources, would cause further compaction, reduced infiltration, increased runoff and erosion, and loss of biological soil crusts. Compaction caused impacts would be greatest on moist soils and soils with few surface coarse fragments. The greatest disturbance impacts to crusts would occur when the soils are dry and on highly calcareous sites. The shallow soils typical of this region cannot tolerate much loss without losing productivity and thus the ability to be re-vegetated with native plants. Invasive, non-native plant species would increase and invade new areas following increased soil disturbance and reduced native plant vigor and abundance. Wild horses likely

transport weed propagules, and this transport would increase as horse numbers increase. This would lead to both a shift in plant composition towards weedy species and an irreplaceable loss of topsoil and productivity due to erosion. With the no action alternative, the severe localized trampling associated with trap sites would not occur, but this alternative would not make progress towards achieving and maintaining a thriving natural ecological balance.

C. Riparian/Wetland Areas and Surface Water Quality

Affected Environment

Riparian areas at high elevations support cottonwood and aspen woodlands. Small riparian areas and their associated plant species occur throughout the Complex near seeps, springs, and along sections of perennial drainages. Hoof action impacts have led to a loss of riparian habitat surrounding spring sources. This type of disturbance combined with reduced vegetative cover is frequently associated with increased floodstage and sediment loading, which can degrade water quality.

Environmental Impacts

Proposed Action – Temporary trap sites and holding/processing facilities would not be located within riparian areas. Riparian areas would improve with the reduced population, which would lead to healthier, more vigorous vegetative communities. Hoof action on the soil around unimproved springs and stream banks would be lessened, which should lead to increased stream bank stability and improved riparian habitat conditions. Improved riparian areas would dissipate stream energy associated with high flows and filter sediment that would result in some associated improvements in water quality. There would also be a reduction in hoof action on upland habitats and reduced competition for available water sources.

Alternative I – Impacts would be the same as in the proposed action. However, normal reproduction rates could have increase impacts on riparian areas over the next several years. Riparian resources may not get as much recovery as in the proposed action.

No Action Alternative – Wild horse populations would continue to grow. Increased wild horse use throughout the complex would adversely impact riparian resources and their associated surface waters. As native plant health deteriorates and plants are lost, soil erosion would increase. With the no action alternative, the severe localized trampling associated with trap sites would not occur, but this alternative would not make progress towards achieving and maintaining a thriving natural ecological balance.

D. Wildlife, including Migratory Birds

Affected Environment

The Monte Cristo Complex provides habitat for many species of wildlife, including large mammals like mule deer, pronghorn antelope, Rocky Mountain elk, and desert bighorn sheep. Yearlong habitat for mule deer occurs throughout the complex. A large area of crucial summer

range occurs in the upper elevations of the Monte Cristo Territory, and small areas of crucial winter range occur in the Monte Cristo and Sand Springs West HMAs. The majority of the complex outside of the White Pine Range is yearlong pronghorn antelope habitat. The White Pine Range in the Monte Cristo Territory is Rocky Mountain elk yearlong habitat. There is occupied desert bighorn sheep habitat in the south end of the Monte Cristo Territory, the Duckwater Hills in the Monte Cristo HMA, and in the Pancake Range in the Sand Springs West HMA.

Sage grouse use the majority of the Monte Cristo Complex throughout the year for all of their seasonal habitat needs. These habitat needs include breeding (i.e., strutting grounds or leks), nesting and early brood-rearing, late brood-rearing or summer, and winter. The Monte Cristo Complex contains portions of four sage grouse population management units (PMUs) identified in the local sage grouse conservation plans. There are about 20 known sage grouse leks within the Monte Cristo Complex. At least 6 of the leks have been active within the past 5 years.

The Monte Cristo Complex provides habitat for small mammals, birds (including migratory birds), reptiles, amphibians, and insects common to the Great Basin.

Environmental Impacts

Proposed Action – Individual animals of all species may be disturbed or displaced during gather operations. Large mammals and some birds may run or fly when the helicopter flies over looking for horses, but once the helicopter is gone the animals should return to normal activities. Small mammals, birds, and reptiles would be displaced at trap sites, but this would only be for a few days at each trap site. There would be no impact to animal populations as a result of gather operations.

Because the Monte Cristo Complex gather would be done during the winter, there would be no impact to breeding and nesting sage grouse, raptors, and migratory birds.

Removing excess wild horses from the Monte Cristo Complex would result in reduced competition between wild horses and wildlife, especially large mammals, for available forage and water resources. Managing wild horses at or below AML would result in improved habitat conditions for all species of wildlife by increasing herbaceous vegetative cover in the uplands and improving riparian vegetation and water quality at springs and seeps.

Alternative I – Impacts would be the same as in the proposed action; however, improved wildlife habitat conditions would not last as long because wild horse populations would build back up and exceed AML sooner.

No Action Alternative – Individual animals would not be disturbed or displaced under the no action alternative. Competition between wildlife and wild horses for forage and water resources would continue, and may even get worse as wild horse numbers continue to increase above AML. Wild horses are aggressive around water sources, and some animals may not be able to compete which could lead to the death of individual animals. Wildlife habitat conditions would deteriorate as wild horse numbers above AML reduce herbaceous vegetative cover. This could

result in lower nesting success for sage grouse and migratory birds.

E. Special Status Plant and Animal Species (federally listed, proposed, or candidate threatened or endangered species; State listed species; and BLM sensitive species)

Affected Environment

There are several BLM sensitive plant species that have been found within or adjacent to the Monte Cristo Complex. These are the Blaine pincushion, rock violet, Nachlinger catchfly, Eastwood milkweed, Currant milkvetch, Needle Mountains milkvetch, and Railroad Valley globemallow.

The Monte Cristo Complex provides winter habitat for bald eagles, a federally listed threatened species. The Railroad Valley springfish, another federally listed threatened species, is found in Big and Little Warm Springs adjacent to the Monte Cristo HMA. Several BLM state sensitive animal species are found within the Complex including several species of bats and raptors, pygmy rabbit, burrowing owl, Railroad Valley tui chub, and Duckwater springsnail.

Environmental Impacts

Proposed Action – Individual raptors may be disturbed during gather operations when the helicopter flies over looking for horses. Once the helicopter is gone these birds should return to normal activities. Because trap sites and holding corrals would not be located where sensitive plant and animal species are known to occur, there would be no impact from these activities. There would be no impact to populations of special status species as a result of gather operations.

Removing excess wild horses from the Monte Cristo Complex and managing wild horses at or below AML would result in improved habitat conditions for all special status animal species by increasing herbaceous vegetative cover in the uplands and improving riparian vegetation and water quality springs and seeps.

Alternative I – Impacts would be the same as in the proposed action; however, improved habitat conditions for all special status animal species would not last as long because wild horse populations would build back up and exceed AML sooner.

No Action Alternative – Individual animals would not be disturbed or displaced because gather operations would not occur under the no action alternative. Habitat conditions for all special status animal species would continue to deteriorate as wild horse numbers above AML reduce herbaceous vegetative cover.

F. Livestock

Affected Environment

The Monte Cristo Complex includes portions of several livestock grazing allotments in the Ely District BLM area. In the Battle Mountain District BLM area (Tonopah Field Station) the Sand

Springs allotment is the only allotment within the Complex. Several forest service allotments (Ely Ranger District) occur within the Monte Cristo Wild Horse Territory. Permitted livestock grazing use in the entire Monte Cristo Complex includes both cattle and sheep grazing during all seasons of the year. Livestock grazing also occurs in areas immediately adjacent to the HMAs and the Wild Horse Territory. Permitted livestock grazing use has generally been reduced in recent years in a majority of the allotments, with the issuance of grazing decisions (multiple use decisions, or MUDs) that have reduced livestock stocking levels, established deferred seasons of grazing, rotated grazing areas, and established water hauling areas that result in distributed livestock grazing. Since the last Monte Cristo gather, licensed livestock use, or actual use, has generally been less than permitted use for each of the grazing allotments, in part due to persistent drought.

Environmental Impacts

Proposed Action – Past experience has shown that gather operations have little direct impacts to grazing cattle and sheep. Trapping sites would not be located in livestock concentration areas. Livestock located near gather activities would be temporarily disturbed or displaced by the helicopter and the increased vehicle traffic during the gather operation. Typically livestock would move back into the area once gather operations cease. Removal of excess wild horses would result in an increase in forage availability and quality, reducing competition between livestock and wild horses for available forage and water resources.

Alternative I – Impacts would be the same as in the proposed action, however, wild horse populations may increase at a normal rate.

No Action Alternative – Livestock would not be displaced or disturbed due to gather operations under the No Action Alternative, however, there would be continued competition with wild horses for water and forage resources. As horse numbers increase, livestock grazing within the HMA may be reduced to prevent further deterioration of the range.

G. Wilderness

Affected Environment

The Monte Cristo Complex contains a large portion of the Park Range Wilderness Study Area. The Park Range WSA lies in the Park Range. The WSA is a rugged, uplifted range, with isolated riparian areas, and meadows. The lower elevations are thickly forested by pinyon pine and juniper. The WSA receives extremely limited amount of wild horse use.

Environmental Impacts

Proposed Action – Impacts to opportunities for solitude could occur during gather operations due to the possible noise of the helicopter and increased vehicle traffic around the WSA. Those impacts would cease when the gather was completed. No surface impacts within the WSA are anticipated to occur during the gather since all trap sites and holding facilities would be placed outside WSAs. Wilderness values of naturalness after the gather would be enhanced by a

reduction in wild horse numbers as a result of an improved ecological condition of the plant communities and other natural resources.

Alternative I – Impacts would be the same as in the proposed action.

No Action Alternative – No impacts to wilderness due to gather operations would occur. Impacts to wilderness values of naturalness could be threatened through the continued population growth of wild horses. Although the area has very little wild horse use degradation of vegetative and soil resources by would be expected if high numbers of wild horses are present in the Monte Cristo Complex. To some, the sight of heavy horse trails, trampled vegetation and areas of high erosion detract from the wilderness experience.

H. Noxious Weeds and Invasive Non-Native Species

Affected Environment

Noxious weed and invasive non-native species introduction and proliferation are a growing concern among local and regional interests. Noxious weeds are known to exist on public lands within the administrative boundaries of the Ely Field Office and Tonopah Field Station. Noxious weeds (typically non-native) are aggressive, and ecologically damaging. These plants threaten biodiversity, habitat quality, and ecosystem health. Because of their aggressive nature, noxious weeds can eventually spread into established plant communities. The following noxious weed species are known to exist within the Monte Cristo Complex.

<u>Scientific Name</u>	<u>Common Name</u>
<i>Cardaria draba</i>	hoary cress/whitetop
<i>Onopordum acanthium</i>	Scotch thistle
<i>Acroptilon repens</i>	Russian knapweed
<i>Carduus nutans</i>	musk thistle
<i>Centaurea maculosa</i>	spotted knapweed
<i>Lepidium latifolium</i>	perennial pepperweed/tall whitetop
<i>Tamarix ramosissima</i>	Saltcedar/Tamarisk

These weeds occur in a variety of habitats including road side areas, rights-of-way, wetland meadows, as well as undisturbed upland rangelands. Invasive non-native species such as cheatgrass, halogeton, Russian thistle, and annual mustards are also known to exist within the Monte Cristo complex in a variety of habitats.

Environmental Impacts

Proposed Action – The proposed gather may spread existing noxious or invasive weed species. This could occur if vehicles drive through infestations and spread seed into previously weed-free areas. The contractor together with the contracting officer's representative or project inspector (COR/PI) would examine proposed trap sites and holding corrals for noxious weeds prior to construction. If noxious weeds are found, the location of the facilities would be moved. Any off-road equipment exposed to weed infestations would be cleaned before moving into weed free

areas. All trap sites, holding facilities, and camping areas on public lands would be monitored for weeds during the next several years. Despite short-term risks, over the long term the reduction in wild horse numbers and the subsequent recovery of the native vegetation would result in fewer disturbed sites that would be susceptible for non-native plant species to invade.

Alternative I – Impacts would be the same as in the proposed action.

No Action Alternative – Under this alternative, the wild horse gather would not take place at this time. The likelihood of noxious weeds being spread by gather operations would not exist. However, continued overgrazing of the present plant communities could lead to an expansion of noxious weeds and invasive non-native species due to increased wild horse numbers.

I. Cultural Resources/Paleontological Resources

Affected Environment

Although a Class III cultural resources inventory of the entire Complex has not occurred, the Class I overview for the Ely District mentions a variety of cultural resources throughout the Complex. This discussion is found in the *Prehistory, Ethnohistory, and History of Eastern Nevada: A Cultural Resources Summary of the Ely and Elko Districts* by James et.al. 1981

Environmental Impacts

Proposed Action – No impacts to cultural resources/paleontological resources are anticipated to occur from gather operations since all trap sites and holding facilities would be inventoried to Class III intensive inventory standards for cultural resources prior to set-up. Trap sites and holding facilities would be located on previously disturbed areas. If cultural resources are encountered at proposed trap sites or holding facilities, those locations would not be utilized unless it could be modified to avoid impacts to cultural resources. A District Archaeological Technician (DAT) would be on-site during the gather to perform any needed cultural resources inventories and monitoring. Once the gather is completed, with reduced horse numbers, there would be less hoof action around riparian spring areas where cultural resources tend to occur in higher frequency. This could lead to decreased damage to cultural resources by wild horses.

Alternative I – Impacts would be the same as in the proposed action.

No Action Alternative – Under this alternative, the wild horse gather would not take place and therefore, no trap sites or holding facilities would be constructed. There would be no possibility that cultural resources would be damaged as a result of horse gather operations, however, high numbers of wild horses could cause damage to cultural resources due to trampling, especially around water sources, where the occurrence of cultural resources can often be high.

V. Cumulative Impacts

Cumulative impacts are impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless

of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The area of cumulative impact analysis is the Monte Cristo Complex.

According to the 1994 BLM *Guidelines For Assessing and Documenting Cumulative Impacts*, the cumulative analysis should be focused on those issues and resource values identified during scoping that are of major importance. Accordingly, the issues of major importance that are analyzed are maintaining rangeland health and proper management of wild horse.

Past Actions

Herd Areas were identified in 1971 as areas occupied by wild horses. The HMAs or Territories were established in the 1980s through the land use planning process as areas where wild horse management was a designated multiple use. The BLM also moved to long range planning with the development of Resource Management Plans and Grazing Environmental Impact Statements. These EISs analyzed impacts of the Land Use Plan's management direction for grazing and wild horses, as updated through Bureau policies, Rangeland Program direction, and Wild Horse Program direction. Forage was allocated within the allotments for livestock use and range monitoring studies were initiated to determine if allotment objectives were being achieved, or that progress toward the allotment objectives was being made.

Due to these laws and subsequent court decisions, integrated wild horse management has occurred in the Monte Cristo Complex. Seven gathers have been completed in the past on part or all of the HMAs/Territory, and future gathers would be scheduled on a 4-or 5- year gather cycle. Approximately 3000 wild horses have been removed from the Monte Cristo Complex in the last 20 years and populations are thriving and have not been negatively impacted. An Appropriate Management Level determination for the Monte Cristo Complex was established through BLM Multiple Use Decisions completed 1991 through 2005, or RMP ROD 1997.

Similarly, adjustments in livestock season of use, livestock numbers, and grazing systems were made through the allotment evaluation/MUD process. In addition, temporary closures to livestock grazing in areas burned by wildfires, or due to extreme drought conditions, were implemented to improve range condition.

Present Actions

Today the Monte Cristo Complex has an estimated population of 980 wild horses. Resource damage is occurring in portions of the Complex due to excess animals. Current BLM policy is to conduct removals targeting portions of the wild horse population based upon age, and allowing the correction of any sex ratio problems that may occur. Further, the BLM's policy is to conduct gathers in order to facilitate a four-year gather cycle. Program goals have expanded beyond establishing a "*thriving natural ecological balance*" (by setting appropriate management level (AML)) for individual herds, to include achieving and maintaining healthy, viable, vigorous, and stable populations. As part of the Monte Cristo Complex gather, the Humboldt-Toiyabe National Forest will also be conducting a wild horse gather on Monte Cristo Territory concurrently with the BLM.

Current mandates prohibit the destruction of healthy animals that are removed or deemed to be excess. Only sick, lame, or dangerous animals can be euthanized, and destruction is no longer used as a population control method.). A recent amendment to the Wild Free-Roaming Horses and Burro Act allows the sale of excess wild horses that are over 10 years in age or have been offered unsuccessfully for adoption three times. As this sale authority is implemented, facility space and funding for gathers should become more available as less unadoptable wild horses are maintained in facilities.

Today public interest in the welfare and management of wild horses is currently higher than it has ever been. Many different values pertaining to wild horse management form current wild horse perceptions. Wild horses are viewed as nuisances, as well as living symbols of the pioneer spirit.

The BLM has modified grazing permits and conducted vegetation treatments to improve watershed health. Currently within the Monte Cristo Complex sheep and cattle grazing occurs on a yearly basis.

The focus of wild horse management has also expanded to place more emphasis on achieving rangeland health as measured through the RAC Standards. The Northeastern Great Basin and Mojave-Southern Great Basin Resource Advisory Councils (RAC) developed standards and guidelines for rangeland health that have been the current basis for managing wild horse and livestock grazing within the Ely and Battle Mountain Districts. Adjustments in numbers, season of use, grazing season, and allowable use are based on evaluating progress toward reaching the standards.

Reasonably Foreseeable Future Actions

In the future, the BLM would manage wild horses within HMAs that have suitable habitat for a population range, while maintaining genetic diversity, age structure, and sex ratios. Current policy is to express all future wild horse AMLs as a range, to allow for regular population growth, as well as better management of populations rather than individual HMAs. The Ely BLM District is in the process of writing a new Resource Management Plan which would analyze AMLs expressed as a range and addressing wild horse management on a programmatic basis. Future wild horse management would focus on an integrated ecosystem approach with the basic unit of analysis being the watershed. The BLM would continue to conduct monitoring to assess progress toward meeting rangeland health standards. Wild horses would continue to be a component of the public lands, managed within a multiple use concept.

While there is no anticipation for amendments to the Wild and Free-Roaming Horse and Burro Act that would change the way wild horses could be managed on the public lands, the Act has been amended three times since 1971. Therefore, there is potential for amendment as a reasonably foreseeable future action.

As the BLM achieves AML on a Bureau wide basis gathers should become more predictable due to facility space. This should increase stability of gather schedules, which would result in the

Monte Cristo Complex being gathered at least every four years. Fertility control should also become more readily available as a management tool, with treatments that last between gather cycles, reducing the need to remove as many wild horses, and possibly extending the time between gathers.

Impacts

Past actions regarding the management of wild horses have resulted in the current wild horse population within the Monte Cristo Complex. Wild horse management has contributed to the present resource condition and wild horse herd structure within the gather area.

The combination of the past, present, and reasonably foreseeable future actions, along with the proposed action, should result in more stable wild horse populations, healthier rangelands, healthier wild horses, and fewer multiple-use conflicts within the Monte Cristo Complex.

VI. Mitigation Measures and Suggested Monitoring

Proven mitigation and monitoring are incorporated into the proposed action through standard operating procedures, which have been developed over time. These SOPs (Appendix II and III) represent the "best methods" for reducing impacts associated with gathering, handling, transporting and collecting herd data.

VII. Consultation and Coordination

Public hearings are held annually on a state-wide basis regarding the use of helicopters and motorized vehicles to capture wild horses (or burros). During these meetings, the public is given the opportunity to present new information and to voice any concerns regarding the use of these methods to capture wild horses (or burros). The Nevada State BLM Office held a meeting on May 17th, 2005, and received input from various members of the public. The EA was also sent to the Humane Society of the United States for consultation on the use of the experimental drug, PZP. The Preliminary EA was mailed to the following list of people on November , 2005:

Insert Mailing List

Internal District Review

Ely Field Office

Jared Bybee	Wild Horses
Mark Lowrie	Range, Noxious and Invasive, Non-Native Species
Steve Leslie	Wilderness Values, Visual Resource Management, Recreation
Mark Henderson	Archaeological/Historic/Paleontological
Paul Podborny	Migratory Birds, Special Status Species, Riparian/Wetlands
Gary Medlyn	Air Quality, Water Quality, Floodplains
Chris Hanefeld	Public Affairs
Fred Fisher	Operations
Jake Rajala	Environmental Coordination

Carolyn Sherve-Bybee	Environmental Coordination
Elvis Wall	Native American Religious Concerns/Tribal Coordination
Mark Lowrie	Livestock Grazing
Ryan Pitts	Livestock Grazing

Battle Mountain Field Office/Tonopah Field Station

Valerie Metscher	Rangeland Resources, Noxious and Invasive Non-Native Species
Shawna Richardson	Wild Horses

**APPENDIX I:
Appropriate Management Level**

Herd	Allotment	Decision & Date	AML # Animals
Monte Cristo HMA	Duckwater	FMUD 1995	157
	Monte Cristo	FMUD 1995	7
	Moorman Ranch	FMUD 1997	0
	Newark	FMUD 1992	21
	Six Mile	FMUD 1991	11
	South Pancake	FMUD 1991	40
	Total		236
Sand Springs East HMA	Duckwater	FMUD 1995	257
	Total		257
Sand Springs West HMA		Tonopah RMP	49
	Total	ROD 1997	49
Monte Cristo Territory		Decision 1995	236 for four months

APPENDIX II

Standard Operating Procedures for Fertility Control Treatment

The following management and monitoring requirements are part of the Proposed Action:

- PZP vaccine would be administered by trained BLM personnel.
- A liquid dose of PZP would be administered concurrently with a time released portion of the drug (pelleted formulation) to breeding mares returned to the range (the pellets are injected with the liquid and are designed to release PZP at several points in time much the way time-release cold pills work).
- Delivery of the vaccine would be as an intramuscular injection by jab stick syringe or dart with a 12 gauge needle or 1.5" barbless needle, respectively while mares are restrained in the working chute; 0.5 cubic centimeters (cc) of the PZP vaccine would be emulsified with 0.5 cc of adjuvant (a compound that stimulates antibody production) and loaded into the delivery system. The pellets would be placed in the barrel of the syringe or dart needle and would be injected with the liquid. Upon impact, the liquid in the chamber would be propelled into the muscle along the pellets¹.
- All treated mares would be freeze-marked on the hip to enable researchers to positively identify the animals during the research project as part of the data collection phase.
- At a minimum, monitoring of reproductive rates using helicopter flyovers will be conducted in years 2 through 4 by locating treated mares and checking for presence/absence of foals. The flight scheduled for year 4 will also assist in determining the percentage of mares that have returned to fertility. In addition, field monitoring will be routinely conducted as part of other regular ground-based monitoring activities.
- A field data sheet will be forwarded to the field from BLM's National Program Office (NPO) prior to treatment. This form will be used to record all pertinent data relating to identification of the mare (including a photograph when possible), date of treatment, type of treatment (1 or 2 year vaccine, adjuvant used) and HMA, etc. The form and any photos will be maintained at the field office and a copy of the completed form will be sent to the authorized officer at NPO (Reno, Nevada).
- A tracking system will be maintained by NPO detailing the quantity of PZP issued, the quantity used, disposition of any unused PZP, the number of treated mares by HMA, field office, and state along with the freeze-mark applied by HMA.
- The field office will assure that treated mares do not enter the adoption market for three years following treatment. In the rare instance, due to unforeseen circumstance, treated mare(s) are removed from an HMA before three years has lapsed, they will be maintained in either a BLM facility or a BLM-contracted long term holding facility until expiration of the three year holding period. In the event it is necessary to remove treated mares, their removal and disposition will be coordinated through NPO. After expiration of the three year holding period, the animal may be placed in the adoption system.

¹ This delivery method has been used previously to deliver immunocontraceptive vaccine with acceptable results. Administration of this two year vaccine to mares would be expected to be 94% effective the first year, 82% effective the second year, and 68% effective the third year. To date, one herd area has been studied using the 2-year PZP vaccine. The Clan Alpine study in Nevada was started in January 2000 with the treatment of 96 mares. The test resulted in fertility rates in treated mares of 6% in year one, 18% in year two and 32% in year three. Average fertility rates in untreated mares range between 50-60% in most populations. The Clan Alpine fertility rate in untreated mares, obtained from direct observation in September of each year, average 51% over the course of the study.

APPENDIX III STANDARD OPERATING PROCEDURES

Gathers would be conducted by contractors or agency personnel. The same procedures for gathering and handling wild horses and burros apply whether a contractor or BLM personnel are used. The following stipulations and procedures will be followed to ensure the welfare, safety and humane treatment of the wild horses and burros (WH&B) in accordance with the provisions of 43 CFR 4700.

Gathers are normally conducted for one of the following reasons:

1. Regularly scheduled gathers to obtain or maintain the Appropriate Management Level (AML).
2. Drought conditions that could cause mortality to WH&B due to the absence of water or forage, and where continued grazing may result in a downward trend to the vegetative communities due to plant mortality and reduced vigor and productiveness.
3. Fires that remove forage to the extent that there is inadequate forage to sustain the population or to allow recovery of native vegetation.
4. Utilization levels that reach a point where a continued increase in utilization would cause a downward trend in the plant communities and impede meeting standards for rangeland health.
5. Monitoring indicates that WH&B use would begin to cause a downward trend in riparian function or not permit the recovery of riparian vegetation determined to be in undesirable condition.

Capture Methods used in the Performance of a Gather - Contract Operations

- a. The primary concern of the contractor is the safe and humane handling of all animals captured. All capture attempts shall incorporate the following:

All trap and holding facilities locations must be approved by the Contracting Officer's Representative (COR) and/or the Project Inspector (PI) prior to construction. The Contractor may also be required to change or move trap locations as determined by the COR/PI. All traps and holding facilities not located on public land must have prior written approval of the landowner.

- b. The rate of movement and distance the animals travel shall not exceed limitations set by the COR/PI who will consider terrain, physical barriers, weather, condition of the animals and other factors.

- c. All traps, wings, and holding facilities shall be constructed, maintained and operated to handle the animals in a safe and humane manner and be in accordance with the following:

- (1) Traps and holding facilities shall be constructed of portable panels, the top of which shall not be

less than 72 inches high for horses and 60 inches for burros, and the bottom rail of which shall not be more than 12 inches from ground level. All traps and holding facilities shall be oval or round in design.

(2) All loading chute sides shall be a minimum of 6 feet high and shall be fully covered, plywood, metal without holes.

(3) All runways shall be a minimum of 30 feet long and a minimum of 6 feet high for horses, and 5 feet high for burros, and shall be covered with plywood, burlap, plastic snow fence or like material a minimum of 1 foot to 5 feet above ground level for burros and 1 foot to 6 feet for horses. The location of the government furnished portable fly chute to restrain, age, or provide additional care for the animals shall be placed in the runway in a manner as instructed by or in concurrence with the COR/PI.

(4) All crowding pens including the gates leading to the runways shall be covered with a material which prevents the animals from seeing out (plywood, burlap, plastic snow fence, etc.) and shall be covered a minimum of 1 foot to 5 feet above ground level for burros and 2 feet to 6 feet for horses

(5) All pens and runways used for the movement and handling of animals shall be connected with hinged self-locking gates.

d. No modification of existing fences will be made without authorization from the COR/PI. The Contractor shall be responsible for restoration of any fence modification which he has made.

e. When dust conditions occur within or adjacent to the trap or holding facility, the Contractor shall be required to wet down the ground with water.

f. Alternate pens, within the holding facility shall be furnished by the Contractor to separate mares or jennies with small foals, sick and injured animals, and estrays from the other animals. Animals shall be sorted as to age, number, size, temperament, sex, and condition when in the holding facility so as to minimize, to the extent possible, injury due to fighting and trampling. Under normal conditions, the government will require that animals be restrained for the purpose of determining an animal's age, sex, or other necessary procedures. In these instances, a portable restraining chute may be necessary and will be provided by the government. Alternate pens shall be furnished by the Contractor to hold animals if the specific gathering requires that animals be released back into the capture area(s). In areas requiring one or more satellite traps, and where a centralized holding facility is utilized, the contractor may be required to provide additional holding pens to segregate animals transported from remote locations so they may be returned to their traditional ranges. Either segregation or temporary marking and later segregation will be at the discretion of the COR.

g. The Contractor shall provide animals held in the traps and/or holding facilities with a continuous supply of fresh clean water at a minimum rate of 10 gallons per animal per day. Animals held for 10 hours or more in the traps or holding facilities shall be provided good quality hay at the rate of not less than two pounds of hay per 100 pounds of estimated body weight per day. An animal that is held at a temporary holding facility after 5:00 p.m. and on through the night, is defined as a horse/burro feed day. An animal that is held for only a portion of a day and is shipped or released does not constitute a feed day.

h. It is the responsibility of the Contractor to provide security to prevent loss, injury or death of captured animals until delivery to final destination.

i. The Contractor shall restrain sick or injured animals if treatment is necessary. The COR/PI will determine if injured animals must be destroyed and provide for destruction of such animals. The Contractor may be required to humanely euthanize animals in the field and to dispose of the carcasses as directed by the COR/PI.

j. Animals shall be transported to final destination from temporary holding facilities within 24 hours after capture unless prior approval is granted by the COR/PI for unusual circumstances. Animals to be released back into the HMA following gather operations may be held up to 21 days or as directed by the COR/PI.

Animals shall not be held in traps and/or temporary holding facilities on days when there is no work being conducted except as specified by the COR/PI. The Contractor shall schedule shipments of animals to arrive at final destination between 7:00 a.m. and 4:00 p.m. No shipments shall be scheduled to arrive at final destination on Sunday and Federal holidays, unless prior approval has been obtained by the COR. Animals shall not be allowed to remain standing on trucks while not in transport for a combined period of greater than three (3) hours. Animals that are to be released back into the capture area may need to be transported back to the original trap site. This determination will be at the discretion of the COR.

C.6 CAPTURE METHODS THAT MAY BE USED IN THE PERFORMANCE OF A GATHER

a. Capture attempts may be accomplished by utilizing bait (feed or water) to lure animals into a temporary trap. If the contractor selects this method the following applies:

- (1) Finger gates shall not be constructed of materials such as "T" posts, sharpened willows, etc., that may be injurious to animals.
- (2) All trigger and/or trip gate devices must be approved by the COR/PI prior to capture of animals.
- (3) Traps shall be checked a minimum of once every 10 hours.

b. Capture attempts may be accomplished by utilizing a helicopter to drive animals into a temporary trap. If the contractor selects this method the following applies:

- (1) A minimum of two saddle-horses shall be immediately available at the trap site to accomplish roping if necessary. Roping shall be done as determined by the COR/PI. Under no circumstances shall animals be tied down for more than one hour.
- (2) The contractor shall assure that foals shall not be left behind, and orphaned.

c. Capture attempts may be accomplished by utilizing a helicopter to drive animals to ropers. If the contractor with the approval of the COR/PI selects this method the following applies:

- (1) Under no circumstances shall animals be tied down for more than one hour.
- (2) The contractor shall assure that foals shall not be left behind, or orphaned.
- (3) The rate of movement and distance the animals travel shall not exceed limitations set by the COR/PI who will consider terrain, physical barriers, weather, condition of the animals and other factors.

C.7 MOTORIZED EQUIPMENT

a. All motorized equipment employed in the transportation of captured animals shall be in compliance with appropriate State and Federal laws and regulations applicable to the humane transportation of animals. The Contractor shall provide the COR/PI with a current safety inspection (less than one year old) for all motorized equipment and tractor-trailers used to transport animals to final destination.

b. All motorized equipment, tractor-trailers, and stock trailers shall be in good repair, of adequate rated capacity, and operated so as to ensure that captured animals are transported without undue risk or injury.

c. Only tractor-trailers or stock trailers with a covered top shall be allowed for transporting animals from trap site(s) to temporary holding facilities, and from temporary holding facilities to final destination(s). Sides or stock racks of all trailers used for transporting animals shall be a minimum height of 6 feet 6 inches from the floor. Single deck tractor-trailers 40 feet or longer shall have two (2) partition gates

providing three (3) compartments within the trailer to separate animals. Tractor-trailers less than 40 feet shall have at least one partition gate providing two (2) compartments within the trailer to separate the animals. Compartments in all tractor-trailers shall be of equal size plus or minus 10 percent. Each partition shall be a minimum of 6 feet high and shall have a minimum 5 foot wide swinging gate. The use of double deck tractor-trailers is unacceptable and shall not be allowed.

d. All tractor-trailers used to transport animals to final destination(s) shall be equipped with at least one (1) door at the rear end of the trailer which is capable of sliding either horizontally or vertically. The rear door(s) of tractor-trailers and stock trailers must be capable of opening the full width of the trailer. Panels facing the inside of all trailers must be free of sharp edges or holes that could cause injury to the animals. The material facing the inside of all trailers must be strong enough so that the animals cannot push their hooves through the side. Final approval of tractor-trailers and stock trailers used to transport animals shall be held by the COR/PI.

e. Floors of tractor-trailers, stock trailers and loading chutes shall be covered and maintained with wood shavings to prevent the animals from slipping.

f. Animals to be loaded and transported in any trailer shall be as directed by the COR/PI and may include limitations on numbers according to age, size, sex, temperament and animal condition. The following minimum square feet per animal shall be allowed in all trailers:

- 11 square feet per adult horse (1.4 linear foot in an 8 foot wide trailer);
- 8 square feet per adult burro (1.0 linear foot in an 8 foot wide trailer);
- 6 square feet per horse foal (.75 linear foot in an 8 foot wide trailer);
- 4 square feet per burro foal (.50 linear feet in an 8 foot wide trailer).

g. The COR/PI shall consider the condition and size of the animals, weather conditions, distance to be transported, or other factors when planning for the movement of captured animals. The COR/PI shall provide for any brand and/or inspection services required for the captured animals.

h. If the COR/PI determines that dust conditions are such that the animals could be endangered during transportation, the Contractor will be instructed to adjust speed.

C.8 SAFETY AND COMMUNICATIONS

a. The Contractor shall have the means to communicate with the COR/PI and all contractor personnel engaged in the capture of wild horses and burros utilizing a VHF/FM Transceiver or VHF/FM portable Two-Way radio. If communications are ineffective the government will take steps necessary to protect the welfare of the animals.

1. The proper operation, service and maintenance of all contractor furnished property is the responsibility of the Contractor. The BLM reserves the right to remove from service any contractor personnel or contractor furnished equipment which, in the opinion of the contracting officer or COR/PI violate contract rules, are unsafe or otherwise unsatisfactory. In this event, the Contractor will be notified in writing to furnish replacement personnel or equipment within 48 hours of notification. All such replacements must be approved in advance of operation by the Contracting Officer or his/her representative.

2. The Contractor shall obtain the necessary FCC licenses for the radio system

3. All accidents occurring during the performance of any task order shall be immediately reported to the COR/PI.

- b. Should the contractor choose to utilize a helicopter the following will apply:
 - 1. The Contractor must operate in compliance with Federal Aviation Regulations, Part 91. Pilots provided by the Contractor shall comply with the Contractor's Federal Aviation Certificates, applicable regulations of the State in which the gather is located.
 - 2. Fueling operations shall not take place within 1,000 feet of animals.

C.9 CONTRACTOR-FURNISHED PROPERTY

- a. As specified herein, it is the contractor's responsibility to provide all necessary support equipment and vehicles, hay and water for the animals and any other needed items, personnel, vehicles, horses, etc. to support the capture, care and transport of horses/burros. Other equipment includes but is not limited to, a minimum 2,500 linear feet of 72-inch high (minimum height) panels for horses or 60-inch high (minimum height) for burros for traps and holding facilities. Separate water troughs shall be provided at each pen where animals are being held. Water troughs shall be constructed of such material (e.g., rubber, galvanized metal with rolled edges, rubber over metal) so as to avoid injury to the animals.
- b. The Contractor shall provide a radio transceiver to insure communications are maintained with the BLM project PI when driving or transporting the wild horses/burros. The contractor needs to insure communications can be made with the BLM and be capable of operating in the 150 MHz to 174 MHz frequency band, frequency synthesized, CTCSS 32 sub-audible tone capable, operator programmable, 5kHz channel increment, minimum 5 watts carrier power.

C.10 GOVERNMENT FURNISHED EQUIPMENT/SUPPLIES/MATERIALS

The government will provide a portable restraining chute for each contractor to be used for the purpose of restraining animals to determine the age of specific individuals or other similar procedures. The contractor will be responsible for the maintenance of the portable restraining chute during the gather season. The government may also provide VHF/FM portable 2-way radios, if needed. The government will provide all inoculate syringes, freezemarking equipment, and all related equipment for fertility control treatments. When required a boat will be furnished to transport burros. The Contractor shall be responsible for the security of all Government Furnished Property (GFP).

C.11 SITE CLEARANCES

Prior to setting up a trap or temporary holding facility, BLM will conduct all necessary clearances (archaeological, T&E, etc). All proposed site(s) must be inspected by a government archaeologist. Once archaeological clearance has been obtained, the trap or temporary holding facility may be set up. Said clearance shall be arranged for by the COR, PI, or other BLM employees.

F. Animal Characteristics and Behavior

Releases of wild horses would be near available water. If the area is new to them, a short-term adjustment period may be required while the wild horses become familiar with the new area.

G. Public Participation

It is BLM policy that the public will not be allowed to come into direct contact with wild horses or burros being held in BLM facilities. Only authorized BLM personnel, or contractors may enter the corrals or directly handle the animals. The general public may

not enter the corrals or directly handle the animals at anytime or for any reason during BLM operations.

H. Responsibility and Lines of Communication

Ely District

Contracting Officer's Representatives

Ely Field Office
Jared Bybee

Battle Mountain Field Office/Tonopah F.S.

Project Inspectors

Ely Field Office
Paul Podborny

Battle Mountain Field Office/Tonopah F.S.

The Contracting Officer's Representatives (CORs) and the project inspectors (PIs) have the direct responsibility to ensure the Contractor's compliance with the contract stipulations. The Ely and Tonopah Assistant Field Manager for Renewable Resources or Field Station and the Ely and Battle Mountain Field Managers will take an active role to ensure the appropriate lines of communication are established between the field, Field Office, State Office, National Program Office, and PVC Corral offices. All employees involved in the gathering operations will keep the best interests of the animals at the forefront at all times.

All publicity, formal public contact and inquiries will be handled through the Assistant Field Manager for Renewable Resources. This individual will be the primary contact and will coordinate the contract with the BLM Corrals to ensure animals are being transported from the capture site in a safe and humane manner and are arriving in good condition.

The contract specifications require humane treatment and care of the animals during removal operations. These specifications are designed to minimize the risk of injury and death during and after capture of the animals. The specifications will be vigorously enforced.

Should the Contractor show negligence and/or not perform according to contract stipulations, he will be issued written instructions, stop work orders, or defaulted.

APPENDIX IV POPULATION MODELING

Population modeling was completed for the proposed action and the alternatives for the BLM-managed herds. One hundred trials were run, simulating population growth and herd demographics to determine the projected herd structure for the next four years, or prior to the next gather. The computer program used simulates the population dynamics of wild horses. It was written by Dr. Stephen H. Jenkins, Department of Biology, University of Nevada, Reno, under a contract from the National Wild Horse and Burro Program of the Bureau of Land Management and is designed for use in comparing various management strategies for wild horses.

Interpretation of the Model

The estimated population of 980 wild horses is for the Monte Cristo Complex. Year one is the baseline starting point for the model, and reflects wild horse numbers immediately after a gather action, or the lack of action in the case of the No Action Alternative. In this population modeling, year one would be 2006. Year two would be exactly one year in time from the original action, and so forth for years three, four, and five. Consequently, at year five in the model, exactly four years in time would have passed. In this model, year five is 2011. This is reflected in the Population Size Modeling Table by "Population sizes in 5 years" and in the Growth Rate Modeling Table by "Average growth rate in 4 years". Growth rate is averaged over four years in time, while the population is predicted out the same four years to the end point of year five. The Full Modeling Summaries contain tables and graphs directly from the modeling program.

Population Modeling Criteria

The following summarizes the population modeling criteria that are common for the Proposed Action, Alternative, and No Action:

- Starting Year: 2006
- Initial gather year: 2006
- Gather interval: regular interval of four years
- Sex ratio at birth: 50% female-50% male
- Percent of the population that can be gathered: 85%
- Minimum age for long term holding facility horses: no restrictions
- Foals are not included in the AML
- Simulations were run for four years with 100 trials each
- Fertility control is estimated to be 94% effective in year 1 and 82% effective in year 2

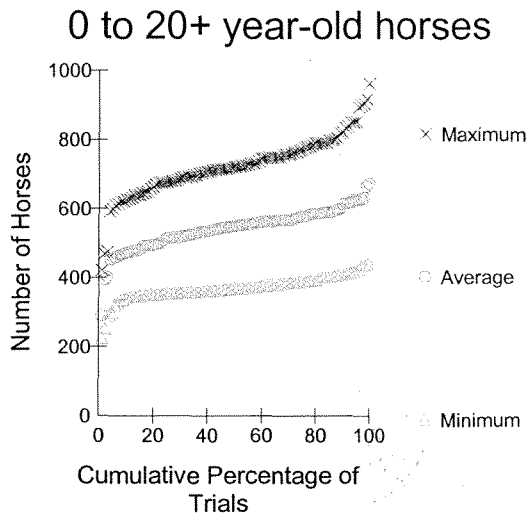
Population Modeling Comparison for the Alternatives

This table compares the projected population growth for the proposed action and the alternative at the end of the four-year simulation. The population averages are across all trials.

Modeling Statistic	Proposed Action	Alternative I	No Action Alternative
Population in Year One	285	285	980
Median Growth Rate	10.5	17.8	15.7
Average Population	549	539	921

Proposed Action: Gather with Fertility Control

Population Size Graph



Population Size

Population Sizes in 10 Years*

	Minimum	Average	Maximum
Lowest Trial	224	290	421
10th Percentile	341	472	627
25th Percentile	353	514	677
Median Trial	368	549	721
75th Percentile	388	577	774
90th Percentile	410	614	827
Highest Trial	441	672	963

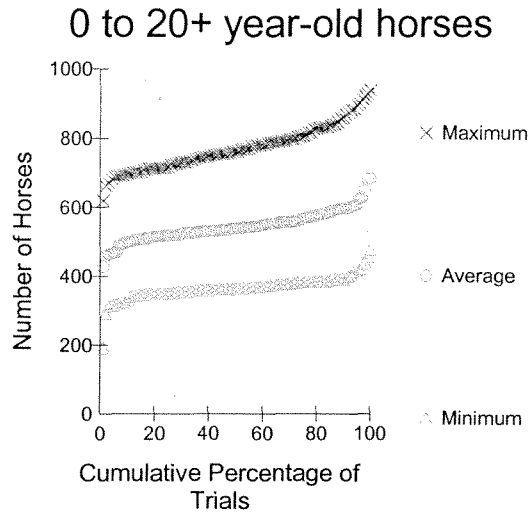
* 0 to 20+ year-old horses

Average Growth Rate in 10 Years

Lowest Trial	0.8
10th Percentile	5.4
25th Percentile	8.4
Median Trial	10.5
75th Percentile	12.6
90th Percentile	14.8
Highest Trial	17.6

Alternative I: Gather without Fertility Control

Population Size Graph



Population Size

	Population Sizes in 10 Years*		
	Minimum	Average	Maximum
Lowest Trial	192	428	619
10th Percentile	336	498	696
25th Percentile	351	519	720
Median Trial	364	539	760
75th Percentile	382	568	808
90th Percentile	393	597	863
Highest Trial	477	683	937

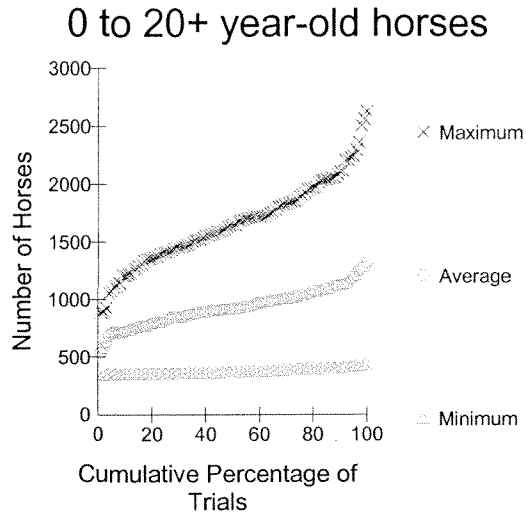
* 0 to 20+ year-old horses

Average Growth Rate in 10 Years

Lowest Trial	8.3
10th Percentile	13.0
25th Percentile	14.9
Median Trial	17.8
75th Percentile	19.4
90th Percentile	21.4
Highest Trial	23.1

No Action Alternative: Delay Management

Population Size Graph



Population Size

	Population Sizes in 10 Years*		
	Minimum	Average	Maximum
Lowest Trial	319	536	887
10th Percentile	357	729	1219
25th Percentile	361	828	1416
Median Trial	375	921	1650
75th Percentile	400	1032	1900
90th Percentile	412	1126	2114
Highest Trial	439	1322	2630

* 0 to 20+ year-old horses

Average Growth Rate in 10 Years

Lowest Trial	8.9
10th Percentile	12.7
25th Percentile	14.0
Median Trial	15.7
75th Percentile	17.3
90th Percentile	18.6
Highest Trial	20.6

